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# Culture of Citrus Fruits In The Gulf States *Citrus Fruits, Gulf States*

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(Continued from last issue)

New plantings of Satsuma oranges since 1925 in Alabama, Mississippi, and Louisiana consist largely of replacements following the freeze of 1924, and the total acreage in this region is not greatly altered.

In considering the present and prospective production of grapefruit, the West Indies, especially Porto Rico, must receive consideration. Cuba and the Isle of Pines in normal seasons ship 500 to 800 carloads (150,000 to 200,000 boxes) of grapefruit a year, and Porto Rico supplies from 600,000 to 800,000 boxes of the fresh fruit. In addition, Porto Rican canned grapefruit to the amount of more than 10,000,000 pounds—nearly half of the entire crop—was shipped to the United States in 1927 and 1928. Oranges (chiefly seedlings or "wild" oranges) are also shipped from Porto Rico, but in limited quantity as compared with grapefruit. The great storm of September, 1928, caused the loss of most of the crop of that season, but the loss of trees was not so great as to cause any permanent shrinkage in the Porto Rican output. Young plantings, it is expected, will more than offset the loss of old trees, so that Porto Rican production will doubtless continue to show a gradual increase. The heaviest shipments of Porto

Rican grapefruit are made in September and October, but shipments continue along into the spring. The eastern markets near receiving ports in the United States absorb most of this fruit.

## Canning Grapefruit

Canned grapefruit, already mentioned, promises to have an effect on the seasonal distribution and prices of fresh grapefruit. The canning of grapefruit (or grapefruit "hearts") has developed rapidly in the last 11 years from a small start made in Porto Rico during the World War when the shipping of fresh fruit was interrupted for lack of cargo boats. Nearly every large citrus-packing center in Florida now has its grapefruit cannery which utilizes oversize, scarred, dropped, and other off-grade fruit that would otherwise go to waste or compete in the markets with the better grades.

The Florida pack of canned grapefruit in the season of 1927-28 reached a total of about half a million cases (15,000,000 pounds), the equivalent of about 650,000 boxes of fresh fruit. Some serious losses have been experienced by canners through using inferior fruit (damaged by frost, immature, or otherwise unfit), and the great need now is for standardization of the product and cooperation among producers. Canned grapefruit has been well received on

the market and promises to become very widely used, not only during the off season when fresh fruit is not available but throughout the year.

Grapefruit juice is also bottled and canned at many of these plants, both in the natural state and in condensed form, with the prospect of further development. A beginning has recently been made in the canning of orange juice.

## Importance of Standard Varieties

The early citrus groves in Florida, Louisiana, and other Gulf States consisted almost entirely of seedling trees. Many of these old seedling groves still remain, but they are fast disappearing. Seedlings are no longer planted in Florida except in a few localities where it is believed that seedlings offer greater hardiness than budded plants.

In the early days of citrus growing in Florida there were one or more seedling orange trees in each community locally famous for superior fruit. Bud wood was taken from such trees, and a large number of varieties were thus named and planted. Largely as a result of the great number of varieties grown, the citrus output of Florida has been much less uniform in appearance and quality than that of California, where but two varieties of oranges—the Washington Navel and the Valencia—are extensively grown. It has long been

recognized in Florida that of the many varieties available a few should be chosen that can be developed as typical standard commercial sorts and the other less durable ones eliminated.

As a result of this demand for standardization, a committee of prominent growers and nurserymen was appointed by the 1916 Citrus Seminar at Gainesville, Fla., to recommend a short list of selected varieties. The orange varieties chosen as standard were the Parson (Parson Brown), Homosassa, Valencia, Pineapple, and Lue (Lue Gim Gong). No action was taken for grapefruit.

In making up his planting list the grower should limit his choice to two or three of the standard varieties of oranges best suited to his special requirements of soil, season, and situation. For each locality there are certain varieties that are best adapted. The Parson orange, for example, matures earlier and colors up more fully in the hammock sections of north-central Florida than in localities farther south. The Valencia variety, on the other hand is less desirable for northern Florida, as, on account of its late season of ripening, crops may be injured by frosts. The grower should take into careful consideration the matter of varietal adaptability before making out his planting list. The same course should be taken with grapefruit, although there is less varietal distinction with grapefruit than with oranges.

Persons owning groves sites in relatively frost-free areas should capitalize their location by specializing in varieties for the late market, as the Valencia and Lue oranges and the Marsh grapefruit. Thus they may avoid ruinous competition with the districts devoted to early and mid-season varieties, a course that will be reflected in better returns for the whole citrus area.

In southern and central Florida many experienced growers diversify their citrus plantings and are setting out to or three standard varieties of oranges, three or four grapefruit, and one of tangerines. A few growers are planting oranges or grapefruit, or even tangerines, exclusively, but it is believed that the practice of growing some of each kind will be the safest and most profitable in the long run. In the colder citrus sections, there is less opportunity for such diversity, as the choice must be limited to the harder sorts and those maturing early.

#### Home-Grown Varieties

Every home in the citrus region of the Gulf States should have its own supply of fruit from a small grove or

dooryard planting. With a little care the trees can be made to give returns in pleasure and in good fruit far exceeding their cost.

For the home orchard a much wider choice of varieties is possible and desirable than for the commercial grove. The ideal to work for in planning the home planting is a succession of high-quality fruit throughout as long a season as possible. Very often fruits too tender for commercial planting in the locality can be successfully grown in the dooryard by giving them some winter protection.

#### Varieties of Round Oranges

The Parson (Parson Brown) is the earliest commercial variety grown in Florida. Its season is from early October to November, and the fruit is often sweet enough to ship while the skin still shows considerable green color. The fruit is medium in size and oblong in form with a fine-textured peel. The dessert quality is fair to good when grown under the most favorable conditions. It does best when grown on sour-orange stock in hammock soil, while on rough-lemon stock, when planted in light soil, it is usually dry and poor. Many growers in northern Florida and in other colder citrus sections plant the Parson because it matures before the season of dangerous frosts. Early fruit of other varieties is often shipped and labeled "Parson Brown," but this practice is discredited by all reputable growers. The Parson, while not an ideal sort, is the best known and most widely planted early variety.

The Homosassa variety matures from late November to February. The fruit is round, somewhat flattened, and medium to large in size. The appearance, dessert quality, and shipping quality are excellent. The trees are regular and prolific bearers when given good care. Those who have grown the Homosassa consider it a profitable variety, but it is not extensively planted at the present time. Its chief use is to replace in season the old seedling trees now gradually dying out.

The Pineapple is the leading mid-season variety, maturing from late December to early March. It is variable in shape, medium to large in size, with a thin glossy skin of high color, and has numerous seeds. It is a good shipper and has high dessert quality when well grown. The tree is prolific and vigorous. The fruit often has a distinct pineapple aroma when mature from which characteristic the name was doubtless derived.

The Valencia, formerly known in Florida as "Harts Late" and also as "Tardiff," is the standard late variety. The fruit is slightly oval in

shape, of good size, and has a very smooth, tough peel. It ripens in March and April, frequently hanging on the trees late into May.

The Lue (Lue Gim Gong) is another late variety of recent origin. It is very similar to the Valencia in size, shape, and other characteristics, but it is claimed that the fruit will hang on the trees even later than that variety. The Lue has been planted rather heavily in Florida during recent years, but is generally marketed as a Valencia, of which it is doubtless a seedling strain.

In addition to the standard varieties mentioned, several other oranges are frequently grown in Florida. The various blood varieties, including the Ruby, Maltese, and St. Michael, are often grown commercially. Although somewhat lacking in vigor, the blood oranges are frequently profitable when grown on fairly strong soils. They are of highest dessert quality and usually bring a premium over other varieties when shipped as fancy fruit. They are especially recommended for home plantings.

Several other old varieties, such as Jaffa, Enterprise (seedless), Hamlin, Drake Star, and Lamb Summer, are grown in certain localities to which they seem especially adapted.

The Hamlin variety (also known as Norris Early) has recently been revived because of its seedlessness, early maturity, and fine texture of the rind. It promises to rival the Parson as an early shipper, especially for the sand-hill regions in south-central Florida. Its smaller size in the fall months, as compared with the Parson, puts it at a disadvantage in some seasons.

The Jaffa is also coming back into favor because of its few seeds, fine eating quality, and long shipping season (from November to March). The tree is a thrifty grower, a steady producer of good-sized fruit, and decidedly hardy.

In Louisiana much of the orange crop is picked from seedling trees and shipped as "Louisiana Sweets" or "Creole" oranges. While much of this seedling crop is of high dessert quality, most Louisiana growers now believe that a more uniform and profitable crop can be obtained by substituting standard varieties for these miscellaneous sorts. Consequently, recent plantings in Louisiana are largely of the standard Florida varieties, such as the Pineapple and the Parson. Washington Navel oranges on trifoliate-orange stock are grown profitably by some citrus growers in the lower Mississippi Delta section.

In the lower Rio Grande Valley of Texas the more common varieties are

the Parson, Washington Navel, Pineapple, and Valencia. The Parson has been locally named "Texas Sugar" and seems well adapted to the Rio Grande sections. The Clementine or "Algerian" tangerine and the King orange are also finding some favor because of earliness and high color. The Dancy tangerine is not well suited to the valley conditions. The Satsuma orange is even less adapted in this region. The Washington Navel is only fairly productive and yields fruit of too large a size to meet trade requirements. Recent orange plantings are chiefly of the Valencia variety.

In southern Mississippi and Alabama very few round oranges are now planted commercially.

#### Grapefruit Varieties

Most grapefruit varieties are less distinct in their characteristics than oranges. A large part of the Florida crop is produced on budded trees of unnamed local sorts. This fruit, together with the product of seedling trees, is popularly designated as "Florida common." The more recent plantings, however are largely confined to the standard named sorts.

The Hall is a midseason variety maturing in February and March. The dessert quality is good, and the trees are prolific. The fruit is frequently borne in clusters, and the variety is often known as Silver Cluster.

The Walters is also a midseason variety which is picked from November to March and sometimes later. The dessert quality is excellent, although the fruit is sometimes objectionably seedy. The trees are vigorous and prolific. The Walters variety is very similar to the Hall, and they are frequently regarded as identical.

The Marsh (Marsh Seedless) variety matures in midseason but may be held late if desired. The quality is good although somewhat lacking in the characteristic sprightly flavor found in most of the seedy varieties. The fruit is practically seedless, of medium size, a good shipper, and holds well on the tree, all qualities that have contributed to make it the favorite for recent grapefruit plantings.

The Duncan is the standard late-season variety. It matures in Florida from January to May and can sometimes be left on the trees until early June. The dessert quality is excellent, and the trees are vigorous growers, good bearers, and somewhat harder than other grapefruit varieties.

The McCarthy is another late variety of good dessert quality. The

trees are vigorous and prolific. The fruit is borne singly rather than in clusters, as is the case with most other grapefruit varieties.

The Davis (Davis Seedless) is a seedless variety which has been extensively planted in Dade County, Fla., during the last few years. It has not yet been fully tested, but is considered a promising variety for trial.

The Triumph is one of the earliest of grapefruit varieties, frequently maturing in December. On account of its extreme seediness and small size, however, it can not be recommended for commercial planting, although it is worthy of a place in the home grove.

The Royal very closely resembles the Triumph.

The Foster, a pick-fleshed variety originating as a bud sport of the Walters, is finding some favor because of its unusual color.

The Thompson, a pink-fleshed strain of the Marsh, has lately attracted attention. These pink-fleshed grapefruits are planted chiefly to supply the private-order trade.

Other grapefruit varieties sometimes planted are Connors (Prolific), Inman (Late), and Excelsior. These are seedy varieties resembling the Walters in physical characteristics.

In the citrus sections of the Gulf States, aside from those in Florida, the favorite grapefruit varieties are the Duncan, Marsh, and Walters. The Duncan is well adapted for the colder sections where grapefruit is grown, as the tree is somewhat harder than the other standard sorts.

#### Varieties of Kid-Glove Oranges

Because of the ease with which the skin may be separated from the pulp, the tangerine, the Satsuma, and the mandarin are popularly known as kid-glove oranges.

The Satsuma was formerly considered a single distinct variety, but investigations indicate that at least six varieties are grown in Japan. Two of these varieties, the Owari and the Ikeda, appear to have been introduced into the United States at an early date, and most of the commercial plantings can be referred to one of flat thin-skinned fruit of good quality—these two varieties. The Owari is a ity, maturing early. The Ikeda is inclined to be more spherical in shape, the skin is thicker and coarser in texture, and the season is usually from two to four weeks later than the Owari. For the best production and hardiness, trees of both varieties should be planted only on trifoliolate-orange stock.

In light sandy soils, especially from central Florida southward, where the

trifoliolate stock is unsuited, the sweet orange appears to be the next best Satsuma stock commercially available.

The tangerine ranks with the Satsuma as the most important of the kid-glove oranges. The Dancy is the only variety of tangerine grown commercially, although the Clementine (Algerian) is being tried out for the early market. The latter variety suits southern Texas much better than the Dancy. The season of the Dancy is from December to March, and that of the Clementine from November to January, while the Satsuma varieties mature from October to December.

The King, a large-fruited rough-skinned variety of the kid-glove sort, is grown occasionally as a fancy fruit. It is late maturing and excellent in dessert quality as grown on hammock soils and other heavy Florida soils suited to the sour-orange stock, but on the light soils of southern Florida it is usually of inferior quality.

#### Lemon Varieties

The ordinary lemon varieties can be grown commercially only in the warm sections of Florida, as the trees may be frosted where the temperature falls below 28° F. The standard lemon varieties, when grown in Florida, tend to produce fruit too large in size and too coarse in texture to meet market requirements, so that few commercial plantings now exist.

The Villafranca is perhaps the most commonly planted of the lemon varieties in Florida. The tree is a vigorous grower, with few thorns, and is usually productive.

The Lisbon matures most of its crop in the winter months and the Eureka in the warmer months of the year.

The Ponderosa is a valuable variety for the home grove. It is an extremely large sort, the fruits often weighing 2 pounds.

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#### WATERPROOF FABRIC MESH BAGS AUTHORIZED AS CONTAINERS FOR FLORIDA HOST FRUITS AND VEGETABLES

Circular PQCA-258, relating to the term "standard commercial containers" in which host fruits and vegetables shipped from an infested State are required to be packed, is modified to authorize the use of waterproof fabric mesh bags in sizes not to exceed one and three-fifths bushels. Such bags shall be employed in interstate commerce for car lot shipments only.

Lee A. Strong, Chief, Plant Quarantine and Control Administration.



# United States Fresh Fruit Exports In 1929

**\$9,000,000 Increase In Value of Fresh Fruit, as Compared With the Previous High Shipments in 1927—Record Shipments of Boxed Apples, Oranges, and Grapefruit,—Exports of Boxed Apples Nearly Trebled During Past Eight Years**

**By Daniel J. Moriarity, Foodstuffs Division, Department of Commerce**

United States exports of fresh fruits in 1929 were valued at about \$69,000,000, as against \$56,000,000 in 1928—representing an increase of \$9,000,000 over the previous high figures of \$60,000,000 in 1927. The decline in value in 1928 was due principally to a short United States apple crop and short citrus crops, combined with good domestic demand and prices.

A rather striking increase in the value of exports of fresh fruits from the United States has occurred in the past few years. In addition to the \$9,000,000 increase in 1929, there was practically a doubling in the value of fresh-fruit shipments abroad in the 5-year period 1923 to 1927. Exports had a value of \$33,000,000 in 1923, of \$41,000,000 in 1924, of \$42,000,000 in 1925, of \$53,000,000 in 1926, and of \$60,000,000 in 1927—a progressive increase of from \$1,000,000 to \$11,000,000 a year.

Increases in values of fresh-fruit exports in 1929 as compared with 1928 were: Apples (boxes), \$3,240,000; apples (barrels), \$3,235,000; oranges \$4,834,000; grapefruit, \$716,000; pears, \$689,000; peaches, \$76,000; and pineapples, \$3,000. Decreases were: Grapes, \$41,000; lemons, \$20,000; berries, \$9,000; and "Other fresh fruits," \$225,000.

## Apples the Principal Fresh-Fruit Export

Apples, the principal fresh-fruit export of the United States, had a value of \$33,000,000 (around \$20,500,000 for boxed apples and \$12,500,000 for barreled apples) in 1929, while oranges came next, with a value of about \$19,000,000. Other exports and their values were: Pears, \$4,800,000; grapefruit, \$3,600,000; grapes, \$2,500,000; berries, \$1,400,000; lemons, \$1,400,000; peaches, \$800,000; pineapples, \$150,000; and "Other fresh fruits," \$2,100,000.

## United States Orange Production

In the 5-year period 1924 to 1928 the United States production of oranges averaged about 39,000,000 boxes a year, of which California contributed 26,500,000 boxes, Florida 11,000,000, Porto Rico 1,000,000, and other States around 500,000.

California produced approximately 23,500,000 boxes of oranges in 1929, as against about 39,000,000 boxes the previous year, and Florida 8,500,000 boxes, as compared with 14,000,000 boxes. Alabama produced 212,000 boxes of oranges in 1929, Louisiana 187,000, Texas 128,000, Arizona 104,000, and Mississippi 8,000.

## Exports of Oranges

United States exports of oranges in 1929—the highest on record—amounted to 5,500,000 boxes, as against 2,700,000 boxes the previous year and an average of 2,700,000 boxes a year in 1924 to 1928. Both California and Florida—particularly the former—had large orange crops in 1928, also an unusually large proportion of small-sized fruit, and every effort was made to dispose of the fruit in both domestic and foreign markets.

Canada is our principal foreign market for oranges—mostly California fruit—taking 3,600,000 boxes (65 per cent) in 1929, as against 2,300,000 boxes in 1928 and previous "high" receipts of 2,600,000 boxes in 1927. The United Kingdom, our second foreign market, took 1,400,000 boxes (25 per cent) of United States orange exports, in 1929, as compared with 150,000 boxes in 1928 and previous "high" takings of 600,000 boxes in 1927. The bulk of the oranges going to the United Kingdom represented California oranges, marketed principally in the period April to September, inclusive. A good portion of these were small-sized oranges—permitting retailing in the United Kingdom at prices lower than previously charged for United States oranges and enabling many persons with low purchasing power to become acquainted with United States oranges for the first time.

Smaller foreign markets for United States oranges in 1929 included the Netherlands, which took 103,000 boxes; Germany, 81,000; New Zealand, 75,000; China, 59,000; Philippine Islands, 48,000; Hong Kong, 19,000; Newfoundland and Labrador, 17,000; Sweden, 14,000; Mexico, 13,000; British Malaya, 12,000; Norway,

12,000; Australia, 7,200; Japan, 4,900; Finland, 4,700; Netherland West Indies, 4,700; Panama, 4,500; Venezuela, 2,600; Bermuda, 2,000; Ceylon, 2,000; Columbia, 1,800; Denmark, 1,100; Argentina, 1,100; and Java and Madura, 1,100. Of the several smaller foreign markets which increased their takings in 1929 the Netherlands received 103,000 boxes, as against negligible quantities previously; Germany 81,000 boxes, as compared with the previous high figures of 28,000 boxes; and Norway 12,000 boxes, in contrast to previous insignificant amounts.

## United States Grapefruit Production

In the 5-year period 1924 to 1928 United States grapefruit production averaged 10,250,000 boxes a year, of which Florida contributed 8,000,000 boxes; Porto Rico, 1,000,000; California, 700,000; Texas, 400,000; and Arizona, 150,000.

Florida produced 5,500,000 boxes of grapefruit in 1929, as against 9,300,000 boxes—a large crop—the previous year. California produced 972,000 boxes of grapefruit in 1929; Texas, 772,000; and Arizona, 211,000. The bulk of United States grapefruit comes from Florida at present, but there is an increasing production in the other States mentioned—particularly Texas, where most of the grapefruit plantings are not yet in full bearing.

## Exports of Grapefruit

United States exports of grapefruit in 1929—the highest on record—amounted to 976,000 boxes, as against 679,000 boxes the previous year and an average of 523,000 boxes a year in 1924 to 1928. Florida had a large grapefruit crop during the 1928 to 1929 season.

The United Kingdom is our principal foreign market for grapefruit, taking 570,000 boxes (59 per cent) in 1929, contrasted with 385,000 boxes the previous year. Canada is also an important foreign market for our grapefruit, taking 355,000 boxes (36 per cent) in 1929.

Smaller foreign markets for United States grapefruit in 1929 were Germany, which took 11,000 boxes;

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# Frost Damage to Citrus Injury and Treatment

By W. J. Bach, Pathologist, Texas Experiment Station, Substation No. 51, In Texas Citriculture

It is a curious fact that the greatest success with citrus fruits has been secured in semitropical countries although they are generally regarded as tropical fruits, having originated in India and the Malay Archipelago. The bulk of the oranges are produced in countries which experience a certain degree of frost, such as California, Florida, Spain, Palestine, Australia, Japan and Italy. Desirable qualities in marketable oranges become more marked as the line is approached where the frequency of frosts makes the culture of the trees unprofitable, or extremely hazardous.

Throughout the citrus districts of the Southwest there are specially favored sections where citrus fruits grow and are seldom injured by the cold. However, there are always localities of irregular extent and outline in any district which may be more hazardous in this respect than other adjoining locations.

## Historical Freezes of Florida and California

In Blodget's "Climatology", published in 1857, a cold period is mentioned as early as 1748 which resulted in considerable damage to tropical fruits of the South. Cold periods occurred in Florida in 1766, 1780, 1800, 1835, 1852, 1876, 1886, and 1894-95.

In California the available records do not extend so far back, but a freeze was experienced in 1882 when a minimum temperature of 21° F. was recorded at Fresno. Other cold periods occurred there in 1888, 1891, 1895, 1911, and 1913, 1922 and 1924. Frosts appear to occur at average intervals of five to seven years.

In 1894-95 a double freeze occurred in Florida which almost wiped out the citrus orchards there. The great damage resulting from this freeze was due to the peculiar relation of the two cold periods and not so much to the severity of them. The first cold period caused the trees to shed their leaves and this was followed by a period of warm growing weather. When the new growth and tender shoots were about four inches long the second freeze came and killed

ed the trees to the ground.

The freeze of January, 1913, was the most severe in the history of California. In the southern part of the state the temperature went lower than had been recorded for a period of sixty years. During this freeze the fruit was subjected to temperatures below freezing for four successive periods, averaging four hours for the first, thirteen hours for the second, thirteen hours for the third, and nine hours for the fourth. Minimum temperatures were recorded as follows: 13° F. at Escondido; 16° F. at Chino; 17° F. at Pomona; 18° F. at Redlands; 21° F. at Riverside and Pasadena; and 25° F. at San Diego. It was estimated that this cold period destroyed at least ten million dollars worth of fruit, to say nothing of the damage to the trees. However, the industry came back very quickly and in 1913-14 the normal amount of fruit was marketed.

## Freezes in the Lower Rio Grande Valley

Temperature records for the Lower Rio Grande Valley as compiled in "Texas Citriculture", September 1929, shows that out of fifty years, since 1880, temperatures of 27 degrees or lower, were recorded in twenty-two years. The coldest period recorded was in 1889, when the temperature went to 16° F. on February 12, 12° F. on the 13th, and 18° F. on the 14th. During the past winter (1929-30) minimum temperature records were 27° F. on December 23rd, 24° F. on January 18th, and 21° F. on January 23rd. The last damaging winter experienced locally was in 1925, when a 26° F. temperature was accompanied by sleet. Reports indicate that the damage in 1925 was rather severe.

## Nature of Frost and Factors Affecting It

Wind, relative humidity, and absence of clouds all influence the occurrence of frost. The air arranges itself in layers or strata as it cools on still nights, the coldest and heaviest next to the ground. Atmospheric moisture lessens cold, first, by retarding the escape of the days heat by radiation at night, and second, the latent heat of vapor becomes sensible heat when the condensation of the vapor takes place. The indirect in-

fluence of the water vapor in the air, in checking radiation from the earth, is a powerful conservator of heat.

When moist air is cooled, it reaches a temperature of saturation which is known as the "dew point", when no more water vapor can be held at that temperature. When further cooled, this water will be deposited either as liquid drops, known as dew, if the temperature is above the freezing point, or as ice crystals, known as frost, if the temperature is below the freezing point. When water vapor is changed into liquid form a large amount of heat is liberated — the same amount which is required to change the same quantity of water into vapor. This liberated heat becomes available to warm the air. The precipitation of one quart of dew is said to liberate enough heat to raise the temperature of 1000 cubic feet of air 25 degrees Fahrenheit.

Clouds have a marked influence in preventing the escape of heat by reflecting or radiating it back to the earth from which it escapes. Therefore, frosts as a rule do not occur on cloudy nights, and the clouding up of the sky during the evening may prevent a frost.

## Symptoms of Frost Damage

One of the first noticeable effects of frost damage to citrus fruits is the formation of drops of water on the surface of the fruit, following the cold period. The term "crying" has been used to designate this symptom. Another early indication of the effects of cold weather upon citrus is the formation of ice crystals in the fruit. The formation of white spots or crystals of hesperidin in the membranes or pulp also occurs following a freeze. These spots may not become noticeable for a period of ten days but they are considered positive evidence of damage. In oranges, grapefruit, and lemons they are found on the membranes between the segments, while in tangerines they are scattered through the pulp. A cross section of a frozen fruit usually shows a pale or watery discoloration and the ruptured cells may be distinguished. Soon numerous broken cells are visible and the fruit tends to dry out at the stem end.

The first noticeable effect of cold on leaves is the dark greasy appear-

\*Paper read before the meeting of the Society of Sub-tropical Horticulturists, Weslaco, Texas, March 12, 1930.

ance it gives them. These dark spots may be on part of the leaf or may cover the entire leaf. Similar discolorations may be found on young twigs. The resistance of branches appears to be in direct ratio to their diameter. Leaves of citrus trees which have been frosted usually curl up and may remain upon the tree and recover to a certain extent or fall off after a few days. Those that remain on the tree may show a discoloration as a result of the exposure to cold, resembling wind-rub to some extent. Defoliation may occur without serious injury to the smaller branches.

Injury to the branches depends upon the size and degree of dormancy. Splitting of the bark on the trunk and lower branches is common. If badly injured the edges roll back exposing the bark and wood to the weather. Injury to trees from cold depends upon, (1) the kind of tree; (2) the degree of dormancy; (3) the length of the cold spell; and (4) the kind of weather following. In the order of hardness varieties may be listed as follows; C. trifoliolate, sour orange, satsuma, kumquat, sweet orange grapefruit, lemon, and lime. At 20° F. to 22° F. the twigs begin to die back and the leaves fall. A temperature of 17° F. or 18° F. for four or five hours will kill trees back to branches of two or three inches in diameter.

Professor R. W. Hodgson of the University of California is the authority for the statement that: "Since Bulletin 304 was issued we have had several serious freezes and have learned much more about the treatment of frost-injured trees than was known at the time this bulletin was prepared" (1919). He states that the practice of wrapping the trunks in an effort to get the cambium and bark to re-unite has been abandoned. Unless this wrapping can be done within a few hours after the freeze there is nothing gained by it. The best results were secured where no treatment was given for several months. "When recovery has started it is advisable to scrape away the dead bark and disinfect the injured area."

In Florida it appears that the area of bark around the bud-union and the base of the trunk is severely injured by cold weather. In the Lower Rio Grande Valley, like in California, it appears that the crotch and the trunk shows severe injury and the bud-union suffers if not protected, but it does not show noticeable tenderness.

#### Factors Affecting Damage Done By Cold

Tenderness of fruit, leaves and

wood are important factors in determining amount of cold injury. Young trees, tender flushes of growth and young fruit suffers most. Dormancy, as influenced by moisture, pruning, and in case of young trees, time of planting has a decided influence upon cold injury. Pruning should not be practiced so early in the winter months that it will cause a flush of growth before the danger of frost is past. It also appears advisable to plant young trees late enough in the fall, in sections where the danger from frost is greatest, so that they will not put out a flush of growth until after the frost danger is over. It has been found that trees which had a moderate amount of moisture probably suffered least, while those which are suffering from lack of water and those which have had too much show more damage. However, conflicting cases make it difficult to deduct any general rule on this point.

Sickly trees are invariably injured more severely than vigorous, healthy trees. This is noticeable in the case of trees suffering from seepage water, gummosis, severe infestations of insect pests, or trees that have been neglected and mis-treated.

#### Treatment of Frozen Trees

Growers are confronted with many important problems in connection with the rejuvenation of frozen trees. Binding of loose bark has been practiced but the benefits resulting have been questionable. If practiced, this treatment must be applied within a few hours after the freeze. It is impractical on a large planting. The wrapping should be done with soft cord, like binder twine, and spiraled around the tree, leaving the greater portion of the bark uncovered and allowing the free access of air, but holding the loose bark firmly against the wood. The practice may be advisable, to a limited extent on trees which show the larger, longer cracks accompanied by a loosening of the bark for a considerable distance back from the crack, but it does not appear to be advisable as a general practice.

Painting, disinfecting or covering split bark with wax is a common practice following injury by a freeze. There are a number of materials which have been used on the cracks formed on various parts of the trees. Proprietary compounds, made for treating tree wounds, should be satisfactory. Growers and tree surgeons should satisfy themselves that there is nothing injurious in the particular material which they desire to use. Any material used for this purpose should have a fungicidal action, and the nature of it should be such, that

when applied, it does not seal the wound over tightly and shut out all the air, and at the same time it should prevent drying out to some extent. Bordeaux paste is perhaps one of the best materials available at this time for this purpose. The use of grafting wax in California has shown that nothing was gained by its use. Painting or treating of cracks is not an absolute necessity immediately following a freeze but indications are that treatment at an early stage will prevent entrance of wood decaying fungi and thus assist in preventing additional loss from the time of the injury until growth has started and dead bark can be trimmed out, when another coat of fungicide or disinfectant should be applied. An application of some material, such as bordeaux paste, also tends to prevent "sunburn" of the exposed and injured wood, and may be of some value as repellent for ants.

Fertilization, irrigation, and early cultural care following a freeze are important topics of general discussion. In general it might be said that it is best to give the trees sufficient moisture to provide good growing conditions, but it is not advisable to attempt to rush the recovery by over-irrigation, fertilization or cultivation. A condition known as "die-back" is likely to result if this is practiced, due to the unbalanced condition between the root system foliage or total leaf area. It is safest to provide good normal growing conditions at first, until the tree re-gains its normal growing proportions.

Pruning is one of the most important operations in the rejuvenation of frozen trees. It appears advisable to delay pruning for three to six months, depending upon the date of the freeze, until the trees have had time to put out new growth and the zone between the dead and the live can be plainly distinguished. Early pruning after a freeze appears to be unnecessary, apparently doing no good, and increases the expense, as a second pruning is necessitated. Dead wood should perhaps be removed from bearing trees since it is likely to fruit spotting, scars, and decay in the following crop. As far as is known, however, this dead wood does not harbor fungus diseases, such as Melanose, which might become an important factor under Florida conditions.

Where a limb is more than half girdled it appears advisable to remove it and allow a new strong branch to replace it. The matter of selection of limbs to be removed or pruned out, revolves upon the indi-

Continued on page 25

# Fresh and Canned Fruit Industry of Porto Rico

By J. R. McKey, American Trade Commissioner, San Juan

(Continued from last issue)

## Grading and Packing

The boxes and crates used by Porto Rican growers in shipping fresh fruit are the standard containers used in the mainland of the United States. All grapefruit and most of the oranges shipped to continental United States are individually wrapped in tissue paper.

Porto Rican citrus fruit for shipment from the island is divided into several classes according to quality. The quality brands of the Porto Rico Fruit Exchange, the principal shipper of citrus fruits, are Gold Ray (now little used), Blue Ray, Red, Purple Ray, Bronze Ray, and Sunniface. Most of the grapefruit shipped from the island goes out under the Purple Ray brand or corresponding quality classification, equivalent to "choice" United States grapefruit.

Grapefruit is packed 28, 36, 46, 54, 64, 80, 96, 112, 125, and 150 to the box. Oranges are packed 96, 112, 126, 150, 176, 200, 216, 226, 252, 288, and 324 to the box. Pineapples run 12, 14, 16, 18, 24, 30, 36, 42, 48, and 52 to the standard crate, most shipments ranging from 24 to 36 to the crate, with 30 to the crate predominating.

## Marketing

Prior to the American occupation of Porto Rico in 1898, shipments of oranges, grapefruit, and pineapples from the island were negligible. About 1900 a few Americans went into the region of Mayaguez and began collecting mountain oranges for shipment to continental United States. At that time steamers plying between Porto Rico and the mainland were not suitably equipped to carry fresh fruit, with the result that a good portion of these mountain oranges spoiled en route to New York, giving such oranges a bad reputation which, it is claimed, they do not deserve.

On the whole, shipments of fresh fruits from Porto Rico were so insignificant prior to 1906 that only oranges were given a separate classification. Pineapples were separately classified in 1906, however, and grapefruit the following year. During the period 1907 to 1910, shipments of oranges (mostly the mountain type) had a total yearly value

ranging from \$402,000 to \$631,000, pineapples \$65,000 to \$555,000, grapefruit \$7,600 to \$163,000, and other fresh fruit \$3,700 to \$18,000.

As already stated, most of the fruit shipped from Porto Rico, excepting mountain oranges, is grown within 25 miles of the city of San Juan, the fruit groves, as a rule, being within easy access to San Juan over excellent highways. Fruit for shipment from the island is delivered at the steamship pier by motor trucks at a carrying charge of from 8 to 15 cents a box, although there is some cultivated fruit shipped to the piers by rail from Arecibo and other points more than 25 miles distant from San Juan at a cost of about 11 cents a box.

It is reported by Porto Rican growers that the cost of packing and delivering a box of fruit at side of steamer, exclusive of the value of the fruit itself, runs about \$1 to \$1.05 for grapefruit, \$1.10 to \$1.15 for oranges, and 75 to 90 cents for pineapples.

Shipping rates (on Aug. 8, 1929) for unrefrigerated space from San Juan to New York were 45 cents a box for oranges and grapefruit and 50 cents a crate for pineapples. An additional charge of 15 cents a box for oranges and grapefruit and 16 cents a crate for pineapples is made for fruit carried in refrigerator chambers of steamers. There is also a dock charge of 6 cents a box or crate at New York. It will be seen that the total carrying charge, on steamer, from San Juan to New York amounts to 66 cents a box for oranges and grapefruit and 72 cents a crate for pineapples.

Some fruit shippers, especially in the case of citrus fruits, use refrigerator space on steamer whenever they can obtain it. Others generally use unrefrigerated space, particularly for pineapples. When there is a general shortage of all steamship space, available space is prorated among interested shippers. Except upon rare occasions, there is usually sufficient cargo space available for Porto Rican fruits going to New York.

Porto Rican fruit shippers have not yet made any provisions of their own for the precooling of their fruit. However, a cold-storage concern in

San Juan offers shippers space for large quantities of fruit at a charge of 5 cents a box per week; the shipper has to stack the fruit in the cool room and remove it at his own expense. Growers' associations are giving increasing consideration to the question of providing their own precooling facilities. This would permit growers to pack their fruit at a time convenient to them regardless of the date of sailing of the steamer. It would also enable shippers to hold their fruit, if desired, in anticipation of a better market. Also, precooling would permit delivery of the fruit in New York in better condition than is now sometimes the case.

Porto Rican fruit is sold in New York much in the same manner as similar products from other sections of the United States, principally through fruit auction and commission houses, each handling around half of such shipments. Porto Rico suffers a handicap in the distribution of its fruit as compared with fruit from other sections of the United States and from Cuba in that there is connection with only one port—New York—on such steamers as have suitable space and equipment for handling fresh fruits. This precludes a wider direct distribution of Porto Rican fresh fruits.

## Shipments to Foreign Markets

Direct shipments of Porto Rican fresh fruit other than to continental United States have been negligible, totaling around \$8,000 worth a year. However, Porto Rican grapefruit has been moving to the Dominion Republic, Venezuela, and Curacao. Shipments to Curacao are largely used on vessels taking on provisions there; some of such shipments also reach the American colony at Maracaibo through Curacao. The grapefruit for Curacao has been purchased in the public market in San Juan by agents of Curacao ship chandlers for around \$1 per 100 fruit, consisting largely of culls thrown out in packing grapefruit for New York. The fruit is shoveled into burlap bags and put in the hold of the steamer with other cargo, with the result that a good portion of the fruit spoils en route.

Porto Rican grapefruit has been reaching European markets, principally the United Kingdom, for several years in an indirect manner, by



purchase at auction or otherwise in New York and shipment from that port. Trade estimates would indicate that around one-third of the grapefruit shipped from continental United States to European markets represent Porto Rican fruit. Such shipments consisted of 385,000 boxes in 1928 and 421,000 boxes in 1927, with lesser quantities in previous years, which would indicate around 125,000 to 140,000 boxes of Porto Rican grapefruit reaching the United Kingdom in recent years. Up to the present time there have been no regular direct exports of fresh fruits from Porto Rico to the United Kingdom or other European markets. There have, however, been occasional shipments.

#### Trade Associations

There are two fruit associations in Porto Rico which include in their membership most of the fruit growers in the island as well as fruit packers and shippers not directly engaged in producing fruit. One of these associations, the Porto Rico Fruit Exchange, with headquarters in San Juan, is a fruit cooperative organized principally for the marketing of the products of its members. The exchange maintains a branch office in New York. The other associations, the Porto Rico Fruit Union, with headquarters in San Juan, is a fruit cooperative organized principally for the mutual exchange of trade information and, to a certain extent, for the cooperative purchase of fruit growers' supplies. In addition to the foregoing, there are several local fruit growers' associations, prominent among which are the Bayamon Fruit Growers' Association, of Bayamon; the Buena Vista Packing Association, of Bayamon; and the Martin Pena Packing Association, of Hato Rey Station, San Juan.

Practically all the fruit growers' supplies used in Porto Rico are purchased in continental United States.

#### Outlook For Fresh-Fruit Industry

While there have, of course, been individual failures in both the growing and packing of fresh fruit in Porto Rico, there have been fewer failures, on the whole, than in almost any other important line of endeavor in the island. The fruit industry has been a boon to the territory; there are also many evidences that it has been profitable to various individuals. The early growers who succeeded in fruit growing and packing were progressive men who paid better wages than did those in other agricultural pursuits in the island and also housed and treated their employees better than most other employers. These growers were generally quick to eliminate old plantings and old equip-

ment in order to secure better results, though there is still room for improvement in farm management, especially in citrus growing.

Porto Rican fruit growers must compete with growers in continental United States, who have been longer established and have labor which is more skilled and better facilities for reaching desirable markets of the mainland. On a comparative basis wages for labor employed in fruit production and packing in continental United States are higher than in Porto Rico, but there is not as great a difference as would appear at first sight. In general, wages have been increasing in Porto Rico for some years, also the quality of the output of the average worker.

Particular attention is invited to the great asset which Porto Rican fruit growers have in climate. While there are losses at time from droughts or heavy winds, there is never any damage from frost.

It is not probable that there will be any particular increase in the commercial cultivation of oranges in Porto Rico in the near future, princi-

the point where they may be expected to avail themselves of more scientific methods, especially in field management.

#### Canned and Preserved Fruits

In the fiscal years ended June 30, 1925 to 1929, shipments of canned grapefruit from Porto Rico to continental United States ranged in value from \$263,000 to \$1,034,000 a year, while shipments of canned pineapple were valued at \$128,000 to \$242,000. There were also shipped to the mainland in the same period other canned and preserved fruits valued at \$1,600 to over \$15,000 a year; shipments to foreign countries ranged from \$6,300 to \$23,000.

The following table shows shipments from Porto Rico to continental United States of canned and preserved fruits for the past five years. Canned grapefruit did not receive separate classification in shipping statistics until 1924. It will be noted that while shipments of canned grapefruit showed an increase from 1925 to 1928, there was a sharp decline in 1929, owing to the hurricane which swept the island in September, 1928.

Shipments of Canned and Preserved Fruits from Porto Rico to Continental United States

Fiscal year ended June 30	Canned Grapefruit		Canned Pineapples		Other fruit Value
	Pounds	Value	Pounds	Value	
1925	3,841,000	\$ 370,000	1,295,000	\$154,000	\$ 1,600
1926	6,344,000	606,000	1,807,000	162,000	3,100
1927	9,262,000	1,034,000	1,403,000	128,000	3,200
1928	10,734,000	1,003,000	2,122,000	142,000	9,000
1929	2,832,000	263,000	2,323,000	242,000	15,300

Source: Official Porto Rican statistics.

pally because of the available supply of mountain oranges, of high quality, which is ordinarily in excess of market requirements. Any development in the grapefruit industry is more likely to be in the nature of the improvement of existing groves than in an appreciable increase of grapefruit acreage. In this connection, it is reported that in many grapefruit groves the production is only about 50 per cent of what it should be because of the presence of numbers of trees not producing a desirable quantity or quality of fruit. The Porto Rican pineapple, providing it can meet Cuban competition, will probably have a considerable development by way of increased production during the next five years. Most of the land now devoted to tobacco production is suitable for pineapple culture. In view of the experience of some Porto Rican growers with their tobacco crops, they may be expected to turn to some other crop, such as pineapples, affording greater possibilities for profit.

It may be stated that Porto Rican fruit growers have passed through their pioneer efforts, having reached

Early in the development of the commercial fresh-fruit industry in Porto Rico, there arose a need for an outlet for fruit which could not be marketed profitably in a fresh state because of its poor appearance, maturing at an inopportune time, etc. This led to the establishment of canning plants.

At the beginning of the World War, there were two canning plants in operation in Porto Rico, one at Mayaguez and the other near Manati, with their principal product pineapple put up for use by bakers, in No. 10 cans. These plants have been closed for several years.

There are now around nine fruit-canning plants in Porto Rico, with prospects for the establishment of one or two more as soon as the fruit industry in the island recovers somewhat from the effects of the hurricane of September, 1928. These plants are modern and well equipped and combine their operations almost exclusively to the canning of grapefruit and pineapple. The plants are located on highways which traverse the fresh-fruit region and afford easy

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# Texas Demanding Florida Citrus Stock

By P. L. Waycupp

Within the past month most interesting developments have taken place in the Rio Grande Valley citrus belt of Texas, particularly with respect to the attitude of Texans toward Florida citrus nursery stock.

The early beginnings of the citrus business in the Valley were marked by most cordial relationships between Texas and Florida. In fact, it was Florida which furnished the groundwork or basis upon which the Texas citrus production was built up.

Then as the toddling Texas citrus infant developed and got its growth, and demonstrated its ability not only to stand upon its own feet but to get out and do some real traveling upon its own the situation changed.

The Valley developed its own citrus nurseries, and soon these apparently felt capable of supplying the local demand not only for the immediate present but for all time to come. As a result there was evidenced a certain amount of apparent resentment toward Florida citrus nursery concerns which continued to bid for business along the silvery Rio Grande. Apparently this feeling spread among Texas citrus growers, as more and more became sold upon the trade-at-home idea. Quite soon it was downright unfashionable from Brownsville on up the Valley to purchase other than home grown stock for citrus plantings.

Then the Texas agricultural authorities began to evidence some alarm at the possible danger of spreading Florida pests in the Texas citrus field through their introduction upon nursery stock shipped in from Florida. So the embargo and the quarantine came to further bar importation of citrus planting stocks from Florida, finally resulting in the Valley being "sewed up tight."

The quarantine idea even swung so far that a few months ago even cut sprays of asparagus plumosis ferns from Florida were legally barred from admission into Texas agricultural forces, because of "danger of being carriers of the fruit fly." There being nothing about these ferns attractive to the fruit fly, and no record in history of any fruit fly ever having been found present in an asparagus plumosis spray, or even in

a fernery, some Floridians thought this embargo was far-fetched, and said so. But their saying so did not affect the attitude of the agricultural authorities of Texas.

Recently, however, the pendulum not only has begun to swing the other way, but most recent developments indicate that already it has swung pretty far the other way.

Faced by an inability to supply the demand of their own people for nursery stock, which Texas nursery interests evidently had felt fully able to supply for all time to come, many of the same Texas nurserymen who a short time previously were wholly acquiescent in the matter of embargoes and quarantines against everything from Florida began to turn toward Florida as a possible source for supplies.

Florida nursery concerns first received tentative letters indicating that maybe, possibly perhaps, there might be a chance to sell some of those reliable Florida trees in the Lone Star State, even in that portion thereof lying adjacent to the lower Rio Grande. Not only did Texas growers write to that effect but several men more or less identified with the citrus nursery business in that state showed signs of developing the correspondence habit. And all the correspondence showed a friendly spirit toward Florida.

But the Texas agricultural authorities remained adamant. They had said their say, and apparently they could see no reason for changing their attitude.

Rapidly the correspondence got hotter and hotter, however. Air mails not being fast enough the telegraph lines came into use; and some Texans even got aboard trains and came to look over Florida citrus nurseries. Check books came back into use, and some even went so far as to book orders for Florida-grown citrus trees; but such bookings were, of course, subject to entry being permitted by the Texas authorities.

Pressure upon these same agricultural authorities of the State of Texas became heavy. Then it got heavier. However, to the date this is written, at the beginning of April, there have been no signs, that is no signs noticeable so far away as Florida, of any tendency to back up upon

the part of the plant experts in the employ of Texas. Apparently one of the qualifications for a job of this nature in Texas is four speeds forward and no reverse.

But public opinion will not be denied, and the Law of Demand inevitably will produce Supply, from some quarter or by whatever means.

Urged on by Texans interested in getting Florida-grown citrus trees, a large Florida citrus nursery went into court and applied for an injunction against the Texas authorities, to prevent them from enforcing their prohibition against Florida-grown citrus trees. The Floridians were nominally furnishing the legal causus belli, but Texans in revolt against their own state authorities actually were the power behind the movement. There were the usual court delays, as a matter of course, but the result was the granting of a court injunction which tied the hands of the Texas agricultural department, and permitted Texans who wanted Florida-grown citrus trees for planting to have all they wanted of them.

The first carload of Florida trees to arrive sold like veritable hot cakes, and the second carload went the same way. Then another Florida nursery got an injunction likewise, and then truly the bars were down.

Very heavy sales of Florida citrus nursery stock to Texans have been made within a very brief period, if current reports in Florida citrus circles are accurate; and the end is not yet. More sales are in prospect, and the future is said to be rosy for the Florida nurserymen who have what the Texans want.

The Valley specializes in Marsh Seedless grapefruit, and the early demand is said quite naturally to have fallen heavily upon such Marsh Seedless stock as met the Texas requirements. However, the court injunction do not specify Marsh Seedless, so the way is now opened for Florida citrus nurseries again to do business with Texas citrus growers on whatever in the line of citrus trees the latter need and the former are prepared to supply.

A strain of cigar-wrapper tobacco that is resistant to blackshank is being developed by the Florida Experiment Station.

# The Citrus Industry

with which is merged The Citrus Leaf  
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## GROVE CALENDAR FOR APRIL

### Timely Suggestions for Grove Work During the Present Month

Continue cultivating to keep down weeds and grass.

Spray or dust with sulphur if rust mites become numerous on new or old fruit.

Where fruit has been running 12 per cent or more melanose "russet," spray with 3-3-50 Bordeaux-oil in late April or early May.

Begin planting cover crops in non-bearing groves.

Proper planning and preparation NOW will help to swell your profits next fall.

## STATE COMES TO AID IN FLY FIGHT

With government funds exhausted and no provision made for further federal appropriation in the campaign for eradication of the Mediterranean fruit fly, the State of Florida, at the instance of Governor Carlton, came to the temporary relief of the situation by providing emergency funds to carry on the work until some provision is made by congress for further federal relief.

State funds are expected to be provided in sufficient amount to carry on the work for thirty days, by which time it is hoped that congress will have made appropriation of funds to carry on the fight until the fly has been definitely eradicated. What recommendation may be made by the appropriation committee cannot be told, but the hope is still held by Florida growers that congress will provide funds adequate to the needs of the situation.

Meanwhile, Dr. Wilmon Newell, who has been at the head of the eradication work for the past ten months, has tendered his resignation, and Mr. W. C. O'Kane, representing the

federal government, is in direct charge of the work. Dr. Newell continues at the head of the State Plant Board, but his connection with the Plant Quarantine and Control Administration has ceased.

Growers and shippers are hoping that the worst of the fight is over and that there may be no new infestations, but those who are most intimately acquainted with the situation realize that the danger of a new outbreak still exists and that the need for continued federal co-operation and control is still imperative.

Florida citrus growers during the past year have faced a situation of the utmost gravity. So long as the federal department of agriculture insists that danger of new fly infestations exists, the gravity of the situation will continue. Until the department is prepared to declare the danger of infestation is past and to lift the ban on shipment of Florida fruits and vegetables, it remains the duty of the government to provide the funds to enable the department to successfully fight and eradicate the pest.

## STATE HORTICULTURAL SOCIETY

As this issue of The Citrus Industry goes to press, the Forty-Third Annual Meeting of the Florida State Horticultural Society is in progress at Sebring, in the very heart of the citrus growing section of the "Ridge."

President John S. Taylor and Secretary Bayard F. Floyd, with their assistants and the program committee, have carried on the preliminary work with an efficiency which promises a meeting fully up to the standard of former years.

A program of particular interest to citrus growers has been arranged and reports of the initial meeting indicate that the attendance will be fully up to the expectations of the leaders. In view of the many serious problems with which Florida citrus growers have been faced during the past year, the Society and its work are of peculiar interest and importance at this time.

Must Florida citrus growers continue to suffer because Chairman Wood of the congressional appropriations committee dislikes Secretary Hyde and hates Dr. Martlett? And because former State Chairman Calloway failed to get the desired number of jobs for his political henchmen?

The re-election of all but two of the former directors of the Florida Citrus Growers Clearing House Association, and the naming of two of the most far-sighted citrus men in the state as their successors, assures a continuance of the good work of the Association along constructive lines.

With the commercial crop all off the trees by April fifteenth, the next important step will be the clean-up of groves and attention to every detail which will tend to prevent a reinfestation of the fly this season.

Feed the trees if you would expect the trees to feed you.



# BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc.



Edited by The Growers Service Department

VOLUME 4.—NO. 5

ORLANDO, FLORIDA, APRIL, 1930

PAGE 1

## GIVES REASON FOR TAKING AFG SERVICE

Very interesting, indeed, are the conclusions regarding the service to fruit growers by the American Fruit Growers Inc. made by Bruce L. McKinstry, secretary-treasurer of the Ribbon Cliff Fruit Co. of Winesap, Washington in his report to the directors of that company, which operates a large apple property there. The directors endorsing his views and authorized affiliation with the AFG northwest apple organization.

Aid in solving orchard problems from the best practical men in the field was the first consideration mentioned by Mr. McKinstry, who in part said: "the race is led by those who are in a position to take instant advantage of improvements in methods, gained from field experience."

Reciting that, "as an independent grower of apples the company has since 1909 held the option of selling its product to whomsoever it would," he dealt with various phases of the company's selling experience to date. Concerning selling developments in that territory he said "Some large growers reached a tonnage large enough to enable them to pack carloads. By building warehouses they were in a position to perform every function of the cash buyer, except to keep a sufficient contact with consuming markets to enable them to intelligently transact sales.

"Simultaneously with this development came growers associations which went a step in the other direction and took apples in bulk from growers, packed, warehoused, loaded them and performed the function of selling agent. Of these the Skookum Packers Association is the most notable. The Skookum trademark became, and is, the best known apple trademark in the country. The Skookum Packers Association appointed as its selling agent the Northwestern Fruit Exchange, now a division of the American Fruit Growers Inc., the largest distributors of fruit and vege-

## AFG ADDS TO HOUSES IN CITRUS FLORIDA

A brand new packing house of the American Fruit Growers Inc. shortly will arise at Walsingham, in Pinellas County. The specifications have been approved, and contract will soon be let. The house will be most modern in every respect, embodying the latest approved ideas. It will care for the steadily increasing tonnage marketed through the American Fruit Growers Inc. by progressive citrus growers in the Largo-Clearwater section of Pinellas County.

At Ocoee, in Orange County, the American Fruit Growers Inc. have acquired by purchase a new and modern packing house there, which next season will open to growers in that vicinity the advantages of AFG standardized packing methods plus the sales outlets opened through the widespread AFG selling service in over two hundred carload markets in the United States, Canada and abroad.

At Arcadia, the county seat of DeSoto County, the American Fruit Growers Inc. have also purchased a well known packing house, which next season will be in operation, offering its own brands of DeSoto County fruit under the Blue Goose trademark, and opening to citrus growers of that vicinity the benefits of AFG business management, direct and immediate accountings, and AFG standards of packing and selling.

Best evidence of the satisfactory nature of AFG service to the citrus growers of Florida is found in the steady and continuing growth and expansion of that service, in order to care for the requirements of a constantly growing number of commercial citrus producers.

tables in the United States."

"Branch offices," the report continues, are maintained in every large consuming center, and sales agents or brokers in every carlot market. By handling a tremendous volume of

Continued on page 2

## TRADE PREFERENCE IS SHOWN FOR BLUE GOOSE

Certainly "the best way to ascertain is to find out." And scrutiny of a recent report upon dealer service work carried on by the advertising department of the American Fruit Growers Inc. reveals a number of things of interest to the citrus growers of Florida served by this organization.

The report covers calls made upon retail stores in the New York metropolitan area, covering a total of 6,838 calls, of which 6,147 were upon stores in Metropolitan New York, and 691 were upon stores in the city of Newark, across the Hudson.

This work was divided into two campaigns made in this area during the winter of 1929-30. In every case the proprietor of the store, or the manager, was interviewed; and, in addition to some first class sales work on behalf of the AFG growers and their products, figures concerning the store handlings were carefully gathered and tabulated.

In the first effort 5,142 calls were made in Metropolitan New York, in the boroughs of Brooklyn, Bronx, Queens and Manhattan, and two hundred calls in Newark. Of the 5,142 stores called upon, 2,310 were grocery stores, 2,243 were fruit and vegetable stores and stands, and 589 were delicatessen stores.

Of these 5,142 stores 3,265 carried, and had on hand at the time, Blue Goose grapefruit. Of Blue Goose oranges 3,776 dealers had them on hand, and carried them regularly. Of Blue Goose vegetables 2,419 had stocks. There were 913 dealers who did not have any Blue Goose oranges or grapefruit on hand when interviewed, but claimed to handle them at various times. There were 231 stores which did not handle Blue Goose products.

As an aid to the newspaper and poster advertising campaign then in progress for Blue Goose oranges and grapefruit in New York the follow-

Continued on page 2

## BLUE GOOSE NEWS

OFFICIAL publication of the American Fruit Growers Inc., Growers Service Department, published the first of each month in the interest of the citrus growers of the state of Florida.

EDITORIAL ROOMS  
Sixth Floor, State Bank Bldg.  
ORLANDO, FLORIDA



### GIVES REASON FOR

#### TAKING AFG SERVICE

Continued from page 1

business, the distributing cost per carload is reduced to a minimum. No shipping point business house can possibly command the market outlets of this national organization."

Further favorable consideration Mr. McKinstry finds in the fact that, "a lion's share of credit is due it for the development of export outlets. Its commanding position could easily work for our benefit."

Stating that packing facilities could be disregarded, because the company possessed its own adequate plant, Mr. McKinstry continues: "As carlot shippers we are, of course, in a position to sell to Western brokers representing Eastern buyers, or distributors or jobbers, either direct or through brokers, or to carlot users." He then says: "Our problem then resolves itself into that of finding the most direct method of reaching the market at the least cost to us that is compatible with safety."

He then recites the experience of the company, giving the detail of its sales; and showing that examination of records of others developed that the growers served by the selling organization of the American Fruit Growers Inc. over this long period of year averaged considerably higher net returns for their crops.

Further reason for affiliating with the American Fruit Growers Inc. he cites in aid expected from its traffic department in solving certain local

traffic problems of his company, holding that the large tonnage and the high standing of the AFG organization will enable it to render invaluable aid in that direction.

Thus are epitomized the reasons which induced the Ribbon Cliff Fruit Co., after twenty years of successful operation, to affiliate with the American Fruit Growers Inc.

### TRADE PREFERENCE IS SHOWN FOR BLUE GOOSE

Continued from page 1

ing distribution was made of advertising material and "dealer helps: Price cards went into 3,942 stores, grapefruit posters were placed conspicuously in 2,243 stores, grapefruit strips were placed in 2,436 stores; orange posters in 3,289 and orange strips in 3,250. Hangers advertising the general Blue Goose line were placed in over 2,200 stores; and the Blue Goose transfer signs were affixed upon the windows or door glass of 810 stores. In addition 499 dealers placed requisitions for the large Blue Goose signs, which are furnished only to more important stores.

The second campaign covered 1,005 calls made wholly within Brooklyn and Queens boroughs, New York City. Of these 330 were upon grocery stores, 518 upon fruit stores and stands and 157 upon delicatessen stores.

Of these 178 dealers had Blue Goose grapefruit in stock; 509 had Blue Goose oranges in stock; and 471 were carrying Blue Goose vegetables. There were 273 additional stores which claimed to carry Blue Goose oranges and grapefruit in stock at various times, but did not have any on hand when interviewed. There were 97 dealers who were not accustomed to handle any Blue Goose products.

Over in Newark where 691 calls are listed separately, there were 198 stores carrying Blue Goose grapefruit, and 320 carrying Blue Goose oranges at the time interviewed. Also 147 were handling Blue Goose vegetables. There were 206 dealers among these who claimed to handle Blue Goose oranges and grapefruit at various times, but who did not then have any on hand. There were 132 Newark stores which did not then have any on hand. There were 132 Newark stores which did not handle Blue Goose products.

In the distribution of the usual advertising material to stores on this

tions from one hundred stores for the large Blue Goose signs.

That the saying, retailers generally favor Blue Goose fruits strongly, is not a myth or legend is subject to proof, and most convincing proof, if the stores are called upon and figures tabulated.

### TIME FOR OPTIMISM

SAYS R. B. WOOLFOLK

second campaign, there were requisitions

This is a time for optimism in citrus producing circles in Florida, in the opinion of R. B. Woolfolk, vice-president of the American Fruit Growers Inc., and for many years active in the marketing of Florida oranges and grapefruit.

"With the recent modification of the quarantine regulations and extension of our shipping period the markets reacted almost instantly from the then low levels, resulting in highly satisfactory prices to the growers", said Mr. Woolfolk. "However, he continued, "what happened has demonstrated conclusively that the consuming public retains full confidence in Florida oranges and grapefruit; and that this confidence has not been diminished by recent occurrences.

"In spite of a bad beginning, the citrus shipping season now closing has brought returns far better than anyone dared earlier to predict; and there is abundant reason for confidence in the future in the thought that never again will the citrus industry of Florida be called upon to stand the heavy losses it has sustained this season from this cause.

"There has been an excellent bloom upon the citrus trees, but it is, in my opinion, a very serious error to predict over-production, or even a very large crop for next season. Present indications are that we should have a good crop of excellent quality fruit, provided groves are well cared for, fertilized and sprayed. Those who are led by the heavy bloom to predict an enormous crop are crossing a bridge a long time before they get to it. They are overlooking the effect of the recent very heavy rainfall, and doubtful results of pollination. This last due to heavy insect mortality over large areas which were heavily sprayed last summer.

"Better fruit" should be the slogan of every citrus grower, whether big or little; and nothing possible should be left undone to make better fruit a reality. With proper attention to this, I look forward with great

More markets covered, a bigger selling force of higher type, better paid men, contacting their trade for fifty-two weeks in every year and aided by the Blue Goose trademark—that's AFG selling service.

confidence to profitable prices for Florida citrus growers next season.

"Another, and most important, item in every citrus grower's program", he continued, "should be support of the Florida Citrus Growers Clearing House Association. While it has proven impossible to acquaint all the growers with full details of what the Clearing House has accomplished during this season for the benefit of the Florida industry, its accomplishments have been of direct benefit to every grower. In the matter of the fruit fly fight alone, I am inclined to shudder when I think of what might have befallen the Florida industry had there been no Clearing House.

"To my mind, this is a time for a wholesome and understanding optimism concerning not only Florida's citrus industry but Florida business as a whole. One of the most successful tourist seasons in Florida's history is drawing to a close. Our winter visitors are returning to their homes in the North delighted with our climate, boosting for our wonderful system of roads, and picturing visions of our splendid citrus groves. It is

a good message concerning Florida which they carry back with them.

"We should all assist in hastening the time when Florida will become one of the greatest states in the Union, which ultimately Florida is destined to be, and a little well founded, fully justified optimism can help a lot."

#### POPULARIZATION OF GRAPEFRUIT IS TOLD

Gradually America is educating the rest of the world to grapefruit. For many years, of course, the grapefruit was not too popular here. Many regarded it as a liquid form of quinine, mainly because it was the fashion to eat it unripe or only partially matured. But since its culture has been improved and the facilities for marketing it have been perfected, this fruit has made a complete breakfast conquest of the civilized world. Grapefruit was exported to sixty countries last year, England, Germany, and Canada were the best customers, but the fruit went too to the Brazilians and the Bolivians, the Ceylonese, Japanese, Nigerians and Liberians.

Globe trotters will find it wherever they go—except perhaps with the Byrd expedition—and even the explorers enjoy this fruit in cans.

All this season grapefruit has been one of the best buys on the fruit stands. As with oranges, the large sizes of grapefruit are the most economical this year. They are seen about town for as low as five cents apiece (for grapefruit not much larger than oranges) and up to 15 to 20 cents each for mammoth grades.—New York Herald-Tribune, Jan. 28.

"Why do you always slow up at railroad crossings?"

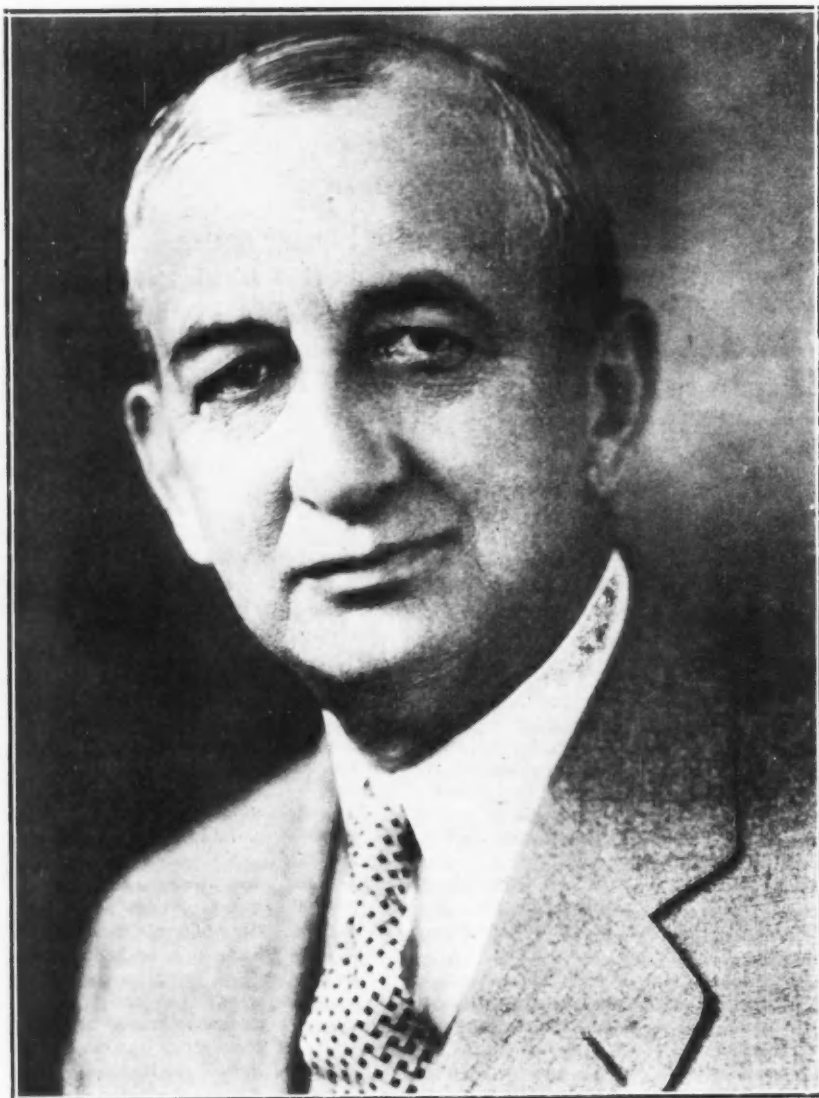
"Aw you can never tell what those crazy engineers will do."—Green Goat.

Caller: What a delightful breakfast nook, and how quaintly the wall paper is water marked. Simply delicious!

Wife:—Yes, this is where my husband eats his grapefruit.

Here lies the body of Erza Trait  
He kidded his wife about her weight.—Oregon Orange Owl.





### AFG PERSONALITIES

✓ R. B. WOOLFOLK, SENIOR VICE-PRESIDENT, and long one of the foremost figures in the produce world. With more than a quarter-century experience in marketing Florida fruits and vegetables behind him, he makes his home in Florida as a matter of choice and gives his chief attention to the Florida affairs of the American Fruit Growers Inc. His office is in Orlando.

# IMPRESSIONS

By The Impressionist

That blank for state and county tax returns, as devised to comply with the law passed by the 1929 Florida Legislature of blessed (?) memory, was an awful thing. We got through it somehow, but the mental hazard set up in evaluating our dog was rather terrific. Now we wouldn't take five hundred iron men for that dog; but we wouldn't give a plugged dime for one hundred thousand more like her; and no other person in a sane state of mind would be willing to pay more than fifty cents a hundred for her, live weight.

And the blank was so unsatisfactory. It just said state the dog's value, right off like that. It didn't specify sentimental value, or commercial value or what. Now our dog's value is variable. When we climb out of bed on a cold winter night to go out on the back porch and kick her at times when she and her fleas are in a state of upset it is one thing. When we come home some nights with three hundred miles on the speedometer after circulating over the citrus belt and she runs to meet us with her tail all circulating like an electric fan her value is something else. Well, we just couldn't evaluate the dog, so we let it go at that. If we wind up an otherwise (for a writing guy) honorable career in jail as a law violator, it will be because the 1929 Legislature just asked too much of us.

But that blank devised by the U. S. Department of Commerce for the census enumeration of farmers was, to us one degree awfuller than that state blank. Now what was the value of the garden sass we raised and ate? We don't know. If Dr. Julius Klein wants to guess that's all right, but we haven't any idea. a

And what was the value of the wood we cut and burned in the house? Who cares, we don't. If Dr. Klein and his assistants want to know, they ought to be willing to drop in and at least help Cliff Gilbert stack it in strands and cords, for the sake of an accurate count, before it finds its way to the fireplace.

Worst thing about these blanks is how they impress your shiftlessness upon you. Here we've been raising garden sass, and just taking it from the garden right into the pot; and cutting wood when, as and if, we needed fires; and we never even thought of keeping records, or carrying a few samples into the A&P store or the woodyard in town to get a true line on what we were doing. Folks who live on farms are sure queer.

These questionnaires we have encountered are all bad, but the, to us, depressing thought is that with all these out of the way all the damphool questions haven't been asked yet.

And after they obtain all this assorted information, at such sacrifice of time and mental effort on the part of those called upon to supply the answers, what do they do with the information? Why they file it! And anybody who has ever been around an office knows that whatever is filed is lost forever. Now if along next summer we could send a wire to Dr. Klein asking him to look up and see when our oldest milk cow is due to calve, and could get an answer back pronto, it would be different. We wouldn't mind filling out the darned thing. But by that time it will be filed.

Overheard in a Winter Park barber shop:

Barber: " 'N out there in Oklahoma last summer, right square in the middle of an oil field we had to pay twenty-three cents a gallon for gasoline, just a cent less than we'd paid here the morning we started away."

Tourist Customer: "That's nothing. We pay more for good oranges and grapefruit here all winter than our family pays in New York City."

Was there ever such a drawing card, or advertisement, for the interior highlands citrus belt as the Bok Tower. From everywhere over the United States and Canada they come daily in flocks and coveys to see and admire; and in the process become acquainted with the Ridge Country. And it isn't the money they "Please Say You Saw It In The Citrus Industry"

leave behind them that counts, its the impressions they take away with them.

Isn't it odd, "the stuff that dreams are made on."

An elderly lady in a northern state, nursing nobody knows what idea, accumulated three thousand acres of pine woods centering about what everybody now knows as Iron Mountain. That name Iron Mountain will be forgotten, but Mountain Lake promises to be a name for coming generations to conjure with.

Dying, she left this tract to her nephew Frederick S. Ruth, then a young New York lawyer. That's the way the story runs if memory serves correctly. Fine white elephant for a young lawyer, three thousand acres of sand hills. But Frederick Ruth dreamed a dream, in which he saw a prosperous colony for wealthy Easterners, surrounded by orange and grapefruit groves. He sold the idea to E. C. Stuart and G. V. Tillman, and got the backing to make a start. Then D. Collins Gillett and others came into the picture. Folks began to hear of Mountain Lake, soon the young grove plantings got going, and then eighty thousand dollar cottages, so called, began to rise around the club house and golf course.



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Visit us at Oneco, or write for free advisory service. Over 45 years experience is yours for the asking. Free catalog on request.

Reasoner Brothers'  
**ROYAL PALM NURSERIES**  
Oneco, Florida

Still Frederick Ruth didn't know what to do with Iron Mountain, except to advertise it for its height above sea level.

Then along came Edward Bok, retiring after a lifetime of labor as editor of Cyrus H. K. Curtis' Ladies Home Journal, which in itself had been a crazy dream that materialized into a multi-millioned reality. Edward Bok found at Mountain Lake the place he had dreamed of in which to make his home. And Edward Bok knew what to do with Iron Mountain.

For during years of sitting at a desk, faced with the realities of editorials on child-labor, and sticky love stores and mince pie recipes, Edward Bok had nursed a dream that grew and grew as his finances strengthened. Iron Mountain fitted into that dream as snugly as the last jagged bit slips into a puzzle-map.

And the Bok Tower and the Sanctuary are the result, to date. The ultimate result, the development which will follow, we cannot yet anticipate accurately; but it is bound to come.

But don't close the story here. Jump back to an insurance salesman in Bloomington Illinois in 1912. A short, husky, likable go-getter, name of Briggs, Joe B. Briggs. Without Joe B(ooster) Briggs, there wouldn't have been any picture hereabout for Ruth and Bok to fill in. For Joe Briggs dreamed the town of Lake Wales, aided and abetted by Messrs. Stuart and Tillman. Then he got out and hustled and made that dream a reality. Turned a stretch of pine woods on a branch line railroad into a wonderful little city, and made the nearby development of Mountain Lake a possibility. He had been a success selling insurance, and he was a success in selling Lake Wales, albeit Lake Wales was chiefly fabric of his imagination.

Dreams come true, and thousands come great distances to marvel and to admire. Edward Bok and Joe Briggs have passed to their rewards, but their dreams are being shared by half a continent.

Nightmares, too, are but dreams gone awry. Which thought was in our mind from Haines City southward down the ridge. Most of these splendid groves that now obtain such admiration were just being planted when we who write these lines were drafted by the late Dr. J. H. Ross to

go to work in an attempt to aid in solving what many citrus growers then felt were definite and pressing problems of "overproduction."

#### BIG INCREASE IN CITRUS CONSUMPTION

At the rate of 1,000,000 a day, Philadelphia hung up a new orange eating and drinking record in 1929, which is quite some record when it is pointed out that the consumption last year was nearly 2,000 carloads greater than in 1928. The greatest number of cars unloaded in the Philadelphia markets in any previous year was 4,317 in 1924.

A detailed report just issued by

the Philadelphia Market News Service of the U. S. Department of Agriculture shows carlot shipments in 1929 were 5,415 against 3,449 in the previous year. In single pieces 5,415 carloads would be approximately 340,000,000 oranges, there being 360 boxes to the car.

The grapefruit fans did pretty well with 1,185 carloads against 902 in 1928. However, the record year for grapefruit in Philadelphia was 1924 when 1,195 carloads were consumed.

These 1929 figures for oranges and grapefruit do not include 818 cars in which the two fruits were shipped mixed. Considering these the per capita consumption in the Philadelphia territory was about 120 for oranges and 14 for grapefruit. In addition 290 carloads of tangerines were sold in Philadelphia markets.

Oranges led all other fruits in carlot shipments, 60 per cent or more than 3000 of them coming from Florida. All of the tangerines and all the cars of grapefruit came from the same state. (In this announcement the population of the Philadelphia consuming territory is estimated at 3,000,000.)



**Spray for  
Aphis & Thrips  
on  
Citrus Fruits**

**It pays  
big dividends  
to SPRAY,**

"Black Leaf 40" is the "Old Reliable" recognized control for Aphis and Thrips.  
**KILLS BY CONTACT and FUMES**  
"Black Leaf 40" kills not only by direct contact (hitting) but in extra measure by the nicotine fumes. This "extra measure" of protection you cannot obtain from the non-volatile insecticides.  
Ask your Experiment Station.  
**DEALERS SELL "BLACK LEAF 40" IN SEVERAL PACKAGE SIZES**

**Black Leaf 40**  
40% Nicotine

Tobacco By-Products & Chemical Corp.  
Incorporated  
Louisville, Ky.



**ORTHO**  
SCIENTIFIC PEST CONTROL

For combined control of Mealybugs, Scale, Scab, Rust Mite, and White Fly, give your trees a thorough application of VOLCK-Bordeaux, or KLEEN-UP-Bordeaux. Write for folder.

CALIFORNIA SPRAY-CHEMICAL CO.

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## HOTEL HILLSBORO

Tampa, Fla.

TOP O' THE TOWN

European Plan, Fireproof

300 Rooms With Baths

THE CENTER OF TAMPA

"Please Say You Saw It In The Citrus Industry"



## Citrus Fruit Industry Faces Increased Foreign Competition

The American citrus fruit industry is confronted with increasing competition in foreign markets from foreign producing countries in which production is being stimulated by the steadily growing world demand for oranges and grapefruit, according to the Bureau of Agricultural Economics, United States Department of Agriculture, following a world survey of the situation.

"Outstanding points in the world citrus fruit situation," the bureau says, "are increasing production of oranges and grapefruit, with recent new plantings and large non-bearing acreages in a number of countries pointing to continued future expansion; an upward trend in consumption of both oranges and grapefruit, particularly grapefruit, in the United States and the principal importing countries, and an apparently fairly stable lemon production situation, at a level, however, that necessitates the use of a considerable proportion in the manufacture of by-products."

Increasing production and export of oranges in the Southern Hemisphere, especially the Union of South Africa and Brazil, is regarded by the bureau as of special significance to California Valencia producers, with whose fruit the Southern Hemisphere product competes on European markets. Also, continued large Spanish crops, together with expanding production in Palestine, is considered to "leave little prospect for volume exports of American oranges to Europe during the winter and early spring."

Production of oranges in the United States for the present season (1929-30) is estimated by the bureau at 33,739,000 boxes compared with 54,130,000 boxes last season, and an average for the years 1923-27 of 34,355,000 boxes. Of this year's crop, 70 per cent is in California and about 28 per cent in Florida. About 19 per cent of the present total United States orange acreage is reported as "non-bearing."

There has been a large increase in the consumption of oranges in northwestern Europe in recent years. Per capita consumption of citrus fruit in the United States is also on the increase. Per capita consumption figures place Australia in the lead with a consumption of approximately 23 pounds of oranges per person annually; per capita consumption in the United States is 22 pounds, and in the United Kingdom and Canada 21 pounds.

Consumption in Northwestern Europe ranges from 13 pounds for Netherlands to 5 pounds for Sweden. A large part of the variation in per capita consumption between different Continental European countries can be explained says the bureau, by import duties. Consumption is highest in the Netherlands where orange imports are free, and lowest in Sweden where the tariff on oranges is the highest in Northwestern Europe.

In writing advertisers please mention The Citrus Industry.

## STATE PLANT BOARD RESUMES INSPECTION FOR CITRUS CANCKER

Resumption of citrus canker inspection work is announced by the State Plant Board. This work was temporarily suspended last spring when the Mediterranean fruit fly was discovered in the state.

According to the Board announcement, small crews have started grove inspection in areas where the last outbreaks of canker were discovered. The grove inspection service is under the direction of M. R. Brown, who formerly had charge of this work but more recently has been directing the fruit fly inspection forces.

## April, May, June . . . the Most IMPORTANT PERIOD for GROVE FERTILIZING



Nature needs the assistance of fertilizers that will furnish a continuous supply of plant food during this critical period in which the young crop of fruit must be set, tree growth increased and food stored up for the coming year's crop.

The excellent results produced by NACO Brands during the past 5 years, has been brought about by maintaining the policy of making up all NACO Brands for Summer Citrus Fertilizing with liberal quantities of the better organic materials (Genuine Peruvian Guano, Goat Manure and Bone Meal) properly balanced . . . some Nitrate of Soda and very little Sulphate of Ammonia . . . the Potash, of course, is sulphate.

NACO fertilized groves have a good crop of fruit EVERY year. If the quality of your fruit and the yield of your grove the past season were not up to your expectations, look up your neighbor whose crop WAS exceptional . . . he probably used NACO Brands . . . let him tell you why he prefers these better fertilizers . . . what they mean to him and to his grove.

**NITRATE**  **AGENCIES**  
1401-1405 LYNCH BUILDING JACKSONVILLE FLORIDA

A folder describing "Peruvianite" sent free on request

# RIPE OLIVES RICH IN VITAMIN A BUREAU OF HOME ECONOMICS SHOWS

Ripe olives of the Manzanillo variety are rich in vitamin A, says the Bureau of Home Economics, U. S. Department of Agriculture, which bases the statement on tests it has just completed. The Manzanillo is a medium-sized olive grown in California for processing and packing ripe. It contains from 14 to 20 per cent of oil, and when prepared for table use has a rich nutty flavor. Some unrefined fats and oils have been found rich in one or more vitamins. The bureau specialists thought that ripe olives might also be a valuable source of at least one of these substances so important in good nutrition. Feeding tests confirmed their expectations. Vitamin A was abundant.

The ripe Manzanillo olives used in the experiments were prepared commercially, and are typical of those offered for sale at retail. The tree-ripened olives are first treated in the factory to develop nutty flavor, are then covered with weak brine and finally are sealed and processed in the air-tight containers like other canned foods. The bureau followed the same general technique as in other studies. Weighed portions of the olives were fed daily to groups of albino rats, fifty animals in all. The growth of the animals having olives as a regular part of their diet indicated the presence of vitamin A.

Similar tests are under way on the Mission variety of processed ripe California olives, which contain an even higher proportion of oil than the Manzanillo. Eventually the experiments will also include tests of the vitamin content of pickled green olives.

## PORTO RICAN CANNED GRAPEFRUIT PACK, 1929-30 SEASON

According to information secured from the Porto Rico Fruit Exchange and forwarded to the Department of Commerce on March 11, 1930, by Assistant Trade Commissioner Roland Welch, at San Juan, it is estimated that the canned grapefruit pack in that island will amount to about 420,000 cases. During the first week or ten days of March grapefruit was ripening rapidly. Some growers, in fact, report that a quantity of it is dropping from the trees before it can be gathered and boxed. Prices for fresh fruit are reported not to be entirely satisfactory and packers are beginning to buy up some quantities which ordinarily would be shipped fresh. All canneries

## THE CITRUS INDUSTRY

April, 1930

are reported to be working at full capacity at present, and if they continue to handle all that they can pack, it is believed by the Exchange

that 450,000 cases may be reached.

In writing advertisers please mention The Citrus Industry.

## CITRUS TREES - Ready

**Orange Trees** The principal varieties, Parson Brown, Pineapple, Valencia, Ruby and St. Michael Blood, various sizes and grades, an exceptional stock of good trees; and on SOUR STOCK.

**Grapefruit Trees** Heavy demand has depleted our stock of grapefruit trees, especially of Marsh Seedless. Only about ten thousand first-class Marsh Seedless now on hand. First come first served.

More than a quarter of a century of experience

Lake Nursery Co.,

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## ● RIPEN ● COLOR ● BLANCH WITH ETHYLENE



*Increases profits*

*Reduces losses*

*Saves time*

INEXPENSIVE—EASY TO USE

## All these advantages

1. Greatly reduces time required for ripening.
2. Prevents waste from rots and fungous growths.
3. Improves flavor.
4. Produces better color by more complete action on the green pigments.
5. Ripening and coloring go on simultaneously.
6. Makes possible the marketing of heretofore unknown tropical fruits.
7. Ripens and colors fruits and vegetables that mature late in the season.
8. Is inexpensive and easily used. Simple apparatus and little experience required.
9. Can be applied equally well to a few crates or a whole carload of fruit or vegetables.
10. Is neither injurious nor dangerous. Widely used. A proved success.

For information write to

**CARBIDE AND CARBON CHEMICALS CORPORATION**  
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Unit of Union Carbide **UCC** and Carbon Corporation

*Citrus fruit Porto Rico*

**PORTO RICO TURNS FROM  
ORANGES TO GRAPEFRUIT  
AS MARKET CROP**

Breakfast grapefruit and coffee grow side by side in Porto Rico, says a new publication of the U. S. Department of Agriculture on "Citrus Culture in Porto Rico." Although small in comparison with the California and Florida crops, the citrus production of Porto Rico in 1928 was estimated at 1,235,000 boxes of grapefruit and more than half a million of oranges.

Commercial planting of citrus in Porto Rico dates from about 1900, says the bulletin. The first planting consisted principally of orange trees but many of these were rebudded to grapefruit a few years later. The more recent plantings consist almost entirely of grapefruit. Most of the oranges grow on trees in the mountain districts, where they are used as shade for coffee trees.

Windbreaks play an important part in citrus culture in Porto Rico. Bamboo is recommended for this purpose because it grows fast. Smaller plants are grown among the citrus trees to help keep the air as humid as possible. By this means scale insects, which are very destructive to citrus trees, are kept in check by scale-deströying fungi.

Citrus growers in Porto Rico fertilize their trees much as do growers in the United States. They apply from 50 to 100 pounds of fertilizer to each tree yearly. Practice varies, but most of the growers make three applications, in December, March, and June.

The hurricane of September, 1928 did considerable damage to the citrus industry of Porto Rico. Thousands of healthy trees were blown over. Those which were set up promptly and cared for properly usually recovered, but many trees in the mountain districts were lost as a result of neglect.

The new publication is issued as Bulletin No. 33 of the Porto Rico Agricultural Experiment Station, which is conducted under the supervision of the U. S. Department of Agriculture. Copies of the bulletin may be obtained, as long as a supply is available for free distribution, by writing to the Office of Information, Department of Agriculture, Washington, D. C.

Work at the Florida Experiment Station during 1929 continued to show that fertilizing Spanish peanuts with either single elements or complete fertilizers seldom pays the cost of the fertilizer.

# When Citrus Trees are HUNGRY They are LAZY, too

**A** HUNGRY TREE can't produce as it ought to. It loafs on the job. Feed your trees with Chilean Nitrate of Soda. Give them fresh vigor. It is rich in quickly available nitrogen—a food for your trees, not a stimulant.

Growers who use Chilean Nitrate get more fruit per tree; better quality and earlier maturity. Their fruit brings top prices. Chilean Nitrate costs only a few cents per tree and returns its cost many times over. This nitrate fertilizer goes to work at once. No loafing. It is the food that lazy trees need to wake them up. Try it! See for yourself the good it does.

Convincing proof of the value of Chilean Nitrate on citrus has been developed at Lake Alfred Experiment Station. You will find it well worth while to visit the station and see these results for yourself.

## Free Fertilizer Book

A new book, "How to Fertilize Citrus in Florida," tells how you can make citrus trees pay greater profits. Ask for Book No. 7, or tear out this ad and mail with your name and address.

**1830-1930—**This year marks the 100th anniversary of the first cargo of Chilean Nitrate brought to the United States.

# Chilean Nitrate of Soda

## EDUCATIONAL BUREAU



Orlando Bank & Trust Bldg., Orlando, Florida

In writing please refer to Ad No. 25-J



# FRESH AND CANNED FRUIT INDUSTRY OF PORTO RICO

Continued from page 10  
access to the city of San Juan. Some of the plants are also served by the railroad, having spur tracks running from the main line to their doors.

## Grapefruit

The bulk of the Porto Rican canned grapefruit pack has, up to the present time, gone into No. 2 cans (1-pound 4 ounces), with 24 cans to a case. Other sizes have been put up, particularly No. 55 cans (8 ounces), with 48 cans to the case, first used extensively last season and reported as growing in favor. The other packs of canned Porto Rican grapefruit are No. 1 cans (11 ounces), 48 cans to the case; No. 5 cans (3 pounds 4 ounces), 12 cans to the case; and No. 10 cans (8 pounds or 1 gallon), 6 cans to the case.

Each canning plant packs grapefruit under its own distinctive labels; in addition, some pack under contract for concerns in continental United States, using the labels of such concerns.

Grapefruit for use in canning is first peeled and the pulp separated from the rag by the use of spatulas of bamboo or stainless steel. It is then packed in its own juice, separate pieces of fruit being placed in the cans in layers, criss-cross fashion, with dry sugar on the bottom of the can. After the can is sealed, it is inverted and run through the hot bath, causing the sugar to dissolve and run down through the fruit. Broken pieces of fruit are canned separately and labeled "Broken sections." The quality of broken fruit is equal ordinarily to that of fancy fruit, but the appearance, naturally, is not as good.

It is understood that it is general practice for Porto Rican fruit canners to credit their own grapefruit groves, or to make payment to growers from whom they secure supplies, on the basis of the market price in New York for their canned grapefruit. The base rate is \$30 a ton for fresh grapefruit when the canned fruit will bring \$4 per case of No. 2 cans in New York. For each fluctuation of 10 cents a case there is a corresponding fluctuation of \$2 a ton in price. It is estimated that it requires approximately one box of fresh grapefruit, weighing around 70 pounds net, to produce a case of No. 2 cans with a net weight of 30 pounds.

Porto Rican canned grapefruit is quoted f. o. b. New York. The following statement, obtained from representative canners, shows various

## THE CITRUS INDUSTRY

costs of a case of 24 No. 2 cans of grapefruit in 1928, from its production to delivery at New York:

Fruit	\$0.75 - \$0.80
Labor	.30- .40
Sugar	.15- .20
Fuel	.022- .03
Labels	.025- .03
Swells	— .01
Administration	.10- .12
Cans (including freight on filled cans to New York from Porto Rico and on empty cans from New York to Porto Rico)	.90- 1.05
Insurance, taxes and depreciation	.10- .12
Brokerage	— .20

Total 2.56 - 2.96

## Oranges

Porto Rican canners have been experimenting for years with a view to developing a process by which oranges may be canned so as to be acceptable in price and flavor to consumers in continental United States. These experiments are still under way, considerable sums having already been expended.

One canning plant reports success with a fruit salad which contains, in addition to oranges, grapefruit, pine-

apple, marachino cherries, and papaya. The salad is packed in No. 2 cans, with four individual portions. This product has met with a good reception and demand in the Middle West, although refused in eastern markets of continental United States.

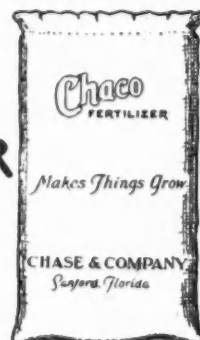
## Fruit Juice Industry

As yet, little has been accomplished in the production of fruit juices in Porto Rico on a commercial scale. There have been some shipments to continental United States of orange juice in barrels and of grapefruit juice in No. 2 cans, but it is probable that any particular development of this product will come as a result of the handling of fruit juices in bulk. It would appear that with increasing consumption of citrus-fruit juice in continental United States, Porto Rico offers possibilities in this direction. Factors for consideration are low labor costs and proximity (four days sailing) to New York and other important consuming centers of continental United States.

In the case of cultivated Porto Rican fruits, the juice industry would have to compete for raw material with the shippers of fresh fruit and the canning plants. The canning plants, however, would offer a source

# Chaco

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Chaco Fertilizer is just as good as we know how to make it. We use it ourselves and recommend it to you.

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for considerable quantities of fruit juice, which is now wasted in the canning process.

Officials of the Federal Agricultural Experiment Station, located at San Juan, report the following as the quantities of juice obtainable from various Porto Rican fruits.

**Juice Obtainable from Porto Rican Fresh Fruit**

Fruit	Per cent of juice	Degrees brix
Cull Grapefruit	30-35	9-11
Mountain Oranges	40-50	14-12
Pineapples	45-50	13-15
Small fruits	40	

**UNITED STATES FRESH-FRUIT EXPORTS IN 1929**

Continued from page 6

France, 4,800; New Zealand, 4,400; the Netherlands, 3,300; Venezuela, 3,300; British Malaya, 2,600; Netherlands West Indies, 2,300; China, 2,100; Australia, 2,100; Philippine Islands, 1,900; Argentina, 1,700; Norway, 1,600; and Denmark, 1,300 boxes.

**Production and Exports of Lemons**

In the 5-year period, 1924 to 1928, United States lemon production averaged 6,750,000 boxes a year—practically all from California. The 1929 lemon crop approximated 6,000,000 boxes, as against about 8,000,000 boxes—a large crop—the previous year.

The United States exported 266,000 boxes of lemons in 1929, as against 251,000 boxes the previous year, and an average of 249,000 boxes a year in 1924 to 1928. Canada is our principal foreign market, taking 199,000 boxes (75 per cent) in 1929, as compared with 184,000 boxes in 1928.

Smaller foreign markets for United States lemons in 1929 were Japan, which took 17,000 boxes; New Zealand, 14,000; China, 12,000; Philippine Islands, 6,600; Cuba, 3,500; Mexico 3,300; Panama, 2,700; Hong Kong, 2,500; and British Malaya, 1,300 boxes.

**GIRLS EAT VEGETABLES, DRINK MILK AND REST FOR HEALTH**

Lake Worth, Fla.—Every girl who drinks a pint of milk, eats two servings of vegetables, and sleeps 9 to 10 hours each day should keep a rosy complexion, is the belief of girls in the local Junior Home Demonstration Club. During February, 19 drank the pint of milk daily, 22 reported two servings of vegetables, and 18 met the requirements for rest.

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# The Final Test of Fertilizer

The Grower, who adopted a program of care and fertilization the past year, with Quality Fruit as his goal, will be richly rewarded when his final returns are in — Quality Fruit will always bring a premium, even in big crop years.

The coming crop, from present indications, will be a big one, and your "net profit" will be determined by the fertilization, care and attention you give your grove. A saving of a few dollars per ton on the cost of your fertilizer may mean the loss of many dollars when your crop is marketed.

ORANGE BELT Brands and the advice of one of our trained field men will assist you in the production of a maximum crop of Quality Fruit — resulting in higher prices and more net profit — the final test of fertilizer.

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## GODFREY TO HEAD LARGE CITRUS FIRM

Organization of the S. A. Gerrard Packing Company of Florida that will operate packing houses throughout this state and Georgia has been announced by F. E. Godfrey, Orlando, prominent citrus dealer who will head the company.

Application for a charter authorizing capitalization at \$200,000 of which \$100,000 is paid, has been made to the secretary of state by the Gerrard company of Cincinnati of which the Florida organization will be a subsidiary.

Headquarters of the Florida units will be in Orlando and the company is expected to take over several packing houses for the handling of citrus fruits and tomatoes. In Georgia the houses will specialize in peaches. Godfrey will have charge of the work in Florida and Georgia.

The Gerrard Company of Cincinnati is one of the largest shippers of western iceberg lettuce and cantaloupes in the country.

Officers of the Florida organization will be S. A. Gerrard chairman of the board, F. E. Godfrey, president, Max Bernstein, vice-president, John H. Barr, secretary and Albert W. Barnett, treasurer.

## EXPORTS OF CANNED GRAPE- FRUIT FROM FLORIDA PORTS

Exports of canned grapefruit from Jacksonville during the week ending March 15, 1930, amounted to 550 cases, all to the United Kingdom, according to information received in the Department of Commerce from its Jacksonville Office. During the week ending March 22, 7801 cases of canned grapefruit were exported from Tampa to the United Kingdom. Total exports of canned grapefruit to foreign countries from Floridian ports during the 1929-30 season through March 22, 1930, amounted to 49,687 cases of which 47,492 went to the United Kingdom, 2,155 to Canada and 40 to Germany.

## CALIFORNIA FINDS FRUIT FLY IN HAWAIIAN ORANGES

San Francisco, Calif.—Discovery of Mediterranean fruit fly larvae in a small shipment of Hawaiian oranges, was announced here recently by state agricultural officials.

The shipment, consigned from one Hawaiian port to another, was not intended for the mainland and had been dropped into a mail bag by mistake, Fred C. Brosius, supervising quarantine officer for this port explained.

# United Paper Company Moves Headquarters to Tampa

For years past we have maintained an office and our production plant in Tampa, but our executive offices have been located elsewhere.

The constantly growing importance of Florida as a citrus and vegetable shipping center, with the resultant increase in our business from this state has made it apparent for some time that our headquarters should be in this state.

From the standpoint of service to our patrons this move is a matter of economic betterment as well as personal gratification.

## JUST A WORD AS TO OUR FLORIDA PLANT

As most of you are aware the United Paper Company furnishes the wrappers for a large percentage of the fruit and vegetables which are shipped from Florida.

In order to capably serve the requirements made on us our Florida plant is one of the largest of the kind in the world. Here, millions upon millions, of wrappers are printed each year and printed on paper made in our mills.

Shippers, packing house operators and thousands of individual users will attest the unvarying excellence of our products.

We are "home-folks" and would appreciate it if you would come in and see us the next time you're in Tampa

**United Paper Company**  
1012 Ellamae Street Tampa, Florida



# CULTURE OF CITRUS FRUITS SUBJECT OF BULLETIN

The business of growing citrus fruits in the Gulf States is the subject of Farmers' Bulletin 1343-F, "Culture of Citrus Fruits in the Gulf States," a new edition of which was recently issued by the U. S. Department of Agriculture. The bulletin discusses the subject from the standpoint of the prospective grove owner, but at the same time summarizes for the experienced grower results of recent investigations on pest control and grove management.

As Florida produces by far the most citrus fruit of all the States under consideration, a more complete discussion is given of the industry in that State than for the other sections. Much of the information relative to Florida, however, is applicable to the other Gulf States as well. Whenever marked differences in methods exist, each locality is considered separately.

The bulletin begins with a history of the citrus industry in the Gulf States, calling attention to the severe losses from cold injury at times in the past. Prospective growers are cautioned to use great care in selecting a site for a grove so as to get

suitable soil and freedom from frost injury. Emphasis is given also to variety and stock adaptation, cultural methods, and economy in production.

The prospective grower of citrus fruits is advised that personal investigation on the ground in advance of investment is always economical and may avert serious loss and disappointment, since areas quite worthless for citrus growing may lie adjacent to some of the best citrus developments.

The growing of citrus fruits of such excellence as to command a ready market, the bulletin states, is a highly complex business. Skill, energy, and attention to detail are requisites for the successful grower, whether he is a beginner or one having experience.

Copies may be obtained from the Office of Information, Department of Agriculture, Washington, D. C., as long as there is a supply available for free distribution.

re-budded if below the bud. The old trunk should be retained, up to the head, as a support for whatever sprouts are saved, until they become strong enough to require no further support. If the main crotch of the tree has been badly damaged it may be well to sacrifice the top and start a new head from healthy growth. The sprouts should be selected that are to be saved and the weaker ones removed, until finally the grower has secured the desired effect, either the head for a new tree, or one strong healthy sour orange sprout, coming from below the bud, into which a desirable variety can be budded later.

As has been pointed out throughout this discussion, it is difficult to lay down any hard and set rules for treatment of frozen trees, but the importance of the judgment of the individual in each case, cannot be stressed too much.

## FROST DAMAGE TO CITRUS INJURY AND TREATMENT Continued from page 8

viduals judgment. New trees can be grown from sprouts, and trained into a tree if above the bud-union, or trained into one strong sprout and

FOR SALE—Two patent pending chemical processes for the coating of oranges and other fruits to prevent rapid decaying. Dr. C. C. Berry, inventor, 251 W. 111th St., New York City.

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### CENSUS TO MAKE SPECIAL SURVEY OF FRUITS AND NUTS IN SOUTH

A special survey of the fruits and nuts industries in five Southern States, comprising Florida, Alabama, Louisiana, Mississippi and Texas, is to be made in conjunction with the agricultural census which will be taken by the Bureau of the Census beginning April 2 this year and ending about May 1.

Officials of the U. S. Department of Agriculture emphasize the importance of this survey, which will yield information on the production of orchard fruits and grapes, subtropical fruits, and nuts. The area of land in fruit orchards, vineyards, and planted nut trees as of April 1, 1930, will be ascertained.

Orchard fruits covered by the survey will include apples, apricots, cherries, peaches, pears, plums and prunes, figs, quinces, nectarines, and other fruits. Subtropical fruits include tangerines, Valencia oranges, Parson Brown oranges, pineapple oranges, lemons, Marsh grapefruit, avocados, and fruits such as guavas, jujubes, kumquats, limes, mangos, Japanese persimmons, papayas, pomegranates, and the like.

The census will ascertain the number of acres in fruit trees or vines on April 1; the number of trees or vines of bearing age; the quantity of orchard fruits and grapes harvested in 1929, and the quantity of 1929 crops sold or to be sold. Similar data will be secured for subtropical fruits and nuts.

The information covered by the survey will be treated as strictly confidential and will not be used as a basis of taxation, nor communicated to any tax official.

### NEWELL RESIGNS FEDERAL POSITION IN FRUIT FLY WORK —SUCCEEDED BY O'KANE

As a result of the discontinuance by the U. S. Department of Agriculture of the Mediterranean fruit fly field inspection work in Florida, Dr. Wilmon Newell, who has been the Federal administrative agent in carrying on this work, has resigned his Federal position and the Government regulatory work in connection with fruit fly activities in Florida has been placed under the direction of Dr. W. C. O'Kane, chairman of the Federal Fruit Fly Board. It was announced to-day by Lee Strong, Chief of the Plant Quarantine and Control Administration.

The department continues cooperation with the Florida State Plant Board, of which organization Doctor Newell is the executive officer. Doctor O'Kane has been chairman of the Federal Fruit Fly Board since its creation by Secretary Hyde on January 9.

### BEAUTIFYING THE HOME

Miss Pearl Jordan, home demonstration agent for Bradford and Union counties, is now conducting 25 demonstrations on exterior home beautification, in cooperation with local farm women.

In writing advertisers please mention The Citrus Industry.

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### REAL ESTATE

**FOR SALE**—By owner, eighty acres, two-year-old best looking grove at reasonable price. Howey-in-the-Hills. For further information write "A. Z." P. O. Box 1261, Orlando, Florida.

**FOR SALE**—Pineapple land in winterless Florida. \$15 an acre. Almont Ake, Venus, Fla.

**WANT TO SELL HALF INTEREST IN FIFTEEN ACRE SATSUMA BEARING GROVE ON HIGHWAY NEAR PANAMA CITY, ROBT. LAMBERT, OWNER. FOUNTAIN, FLA.**

**SATSUMA BUDWOOD from Bearing Trees. Hills Fruit Farm, Panama City, Fla.**

**WANTED** to hear from owner having good farm for sale. Cash Price, particulars. John Black, Chippewa Falls, Wisconsin.

### MISCELLANEOUS

**RAISE PIGEONS**—Profit and pleasure. Illustrated descriptive catalogue postage six cents. Vrana Farms, Box 314a, Clayton, Missouri.

**TUNG OIL TREES**—Cluster variety. Vigorous. Forty cents each. Lots of hundred 30 cents each. Hunt Bros., Inc., Lake Wales, Fla.

**FOR SALE:** Splendid bearing citrus grove in Lee County, far removed from Fruit Fly infestation. Will produce 20,000 boxes coming season. If you want this grove address P. O. Box 295, Fort Myers, Fla.

**PURIFIED PULLETS FOR SALE**—White Leghorns and Anconas ready to ship. Barred Rocks and R. I. Reds shortly. Sev-

eral hundred yearling White Leghorn hens now laying 70%. Write or wire for prices. C. A. Norman, Dr. 1440, Knoxville, Tenn.

**HIGH BLOOD PRESSURE** easily, inexpensively overcome, without drugs. Send address. Dr. J. B. Stokes, Mohawk, Fla.

**LAREDO SOY BEANS**, considered free from nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

**AVOCADOS - SEED** — Grafted. Reliable bearers only. John B. Beach, West Palm Beach, Florida.

**WANTED**—To hear from owner of land for sale. G. Hawley, Baldwin Wis.

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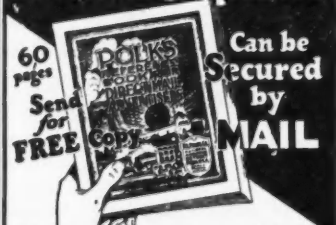
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